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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/612,017	07/03/2003	Hisashi Kameya	01-441	5466

23400 7590 10/22/2004

POSZ & BETHARDS, PLC
11250 ROGER BACON DRIVE
SUITE 10
RESTON, VA 20190

EXAMINER	
LE, TOAN M	

ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 10/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/612,017	KAMEYA, HISASHI	
	Examiner	Art Unit	
	Toan M Le	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1 and 3-7 are rejected under 35 U.S.C. 102(a) as being anticipated by Tokumoto et al. (US Pub. No. 2002/0124663 A1).

Referring to claims 1 and 7, Tokumoto et al. disclose a method and an apparatus for correcting an offset of an output signal produced from a resolver that detects a rotation of a rotary device, comprising the steps of:

picking a maximal value and a minimal value from the output signal for a certain time period (paragraph [0154]);

calculating an average value between the maximal value and the minimal value (paragraph [0154]); and

correcting the offset of the output signal based on the average value (paragraphs [0154] and [0155]).

As to claim 3, Tokumoto et al. disclose a method for correcting an offset of an output signal produced from a resolver that detects a rotation of a rotary device, further comprising a step of determining a candidate offset of the output signal based on the average value before the correcting step, wherein the correcting step is inhibited when the candidate offset is out of a certain range (paragraphs [0157] and [0183]).

Referring to claim 4, Tokumoto et al. disclose a method for correcting an offset of an output signal produced from a resolver that detects a rotation of a rotary device, further comprising steps of:

determining whether the output signal of the resolver is abnormal; and

inhibiting the correcting step when the output signal of the resolver is determined to be abnormal (paragraph [0176]).

As to claim 5, Tokumoto et al. disclose a method for correcting an offset of an output signal produced from a resolver that detects a rotation of a rotary device, further comprising steps of:

detecting whether a rotational spped of the rotary device is not greater than a certain speed and a rotational direction of the rotary device is not reversed ; and

inhibiting the correcting step when the rotational speed is determined to be greater than the certain speed or the rotational direction is determined to be reversed (paragraphs [0176], [0183], and [0184]).

Referring to claim 6, Tokumoto et al. disclose a method for correcting an offset of an output signal produced from a resolver that detects a rotation of a rotary device, wherein the correcting step is performed periodically or at a start of the method (paragraphs [0183] and [0184]).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 2, 8, and 9-12 are rejected under 35 U.S.C. 102(b) as being anticipated by "Signal Processing Techniques for Improved Resolver-To-Digital Conversion Accuracy", Hanselman (Referred hereafter Hanselman).

Referring to claims 2 and 8, Hanselman discloses a method and an apparatus for correcting a gain of an output signal produced from a resolver that detects a rotation of a rotary device, comprising the steps of:

picking, for a certain time period, a maximal sine value and a minimal sine value from a sine output signal included in the output signal, and a maximal cosine value and a minimal cosine value from a cosine output signal included in the output signal (page 8, 1st col., 2nd half; equations 1, 6, and 10);

calculating a first differential value between the maximal sine value and the minimal sine value, and a second differential value between the maximal cosine value and the minimal cosine value (page 8, 1st col., 2nd half; equation 11); and

correcting a gain differential between the sine output signal and the cosine output signal based on the first and second differential values (page 8, 2nd col., 1st half).

As to claim 12, Hanselman discloses a method for correcting a gain of an output signal produced from a resolver that detects a rotation of a rotary device, wherein the correcting step is performed periodically or at a start of the method (page 8, 1st col., 2nd half, and 2nd col., 1st half).

Allowable Subject Matter

Claims 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The primary reason for allowance of the claims 9-11 is the inclusion of the steps of determining a candidate gain differential between the sine and cosine output signals based on the first and second differential values before the correcting step, which is performed periodically, determining whether the output signal of the resolver is abnormal, detecting whether a rotational speed of the rotary device is not greater than a certain speed and a rotational direction of the rotary device is not reversed, and inhibiting the correcting step when the candidate gain differential is out of a certain range or when the output signal of the resolver is determined to be abnormal or when the rotational speed is determined to be greater than the certain speed or the rotational direction is determined to be reversed.

Hanselman neither teaches nor suggests those limitations as described above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 5,796,231 to Kyodo	U.S. Patent No. 5,241,268 to Lee
U.S. Patent No. 5,912,638 to Vlahu	U.S. Patent No. 4,529,922 to Ono
U.S. Patent No. 6,683,774 to Kameya et al.	U.S. Patent No. 4,933,674 to Gasperi et al.
U.S. Patent No. 6,615,152 to Fujimoto et al.	U.S. Patent No. 6,539,329 to Kato et al.
U.S. Patent No. 3,974,498 to Knier	U.S. Patent No. 6,363,797 to Tokumoto
U.S. Patent No. 5,239,490 to Masaki et al.	US-2001/0054911 to Kobayashi et al.

"Sensor-less Control of a Half-Wave Rectified Brushless Synchronous Motor", Oyama et al., 1995 IEEE

"Resolver Position Sensing System with Integrated Fault Detection for Automotive Applications", Murray et al., 2002 IEEE

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M Le whose telephone number is (571) 272-2276. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Toan Le

October 13, 2004

John Barlow
Supervisory Patent Examiner
Technology Center 2800